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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,404	10/01/2003	Takehiko Yamakawa	MTS-3474US	8057

23122 7590 03/03/2005

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EXAMINER	
HAM, SEUNGSOOK	
ART UNIT	**PAPER NUMBER**
2817	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,404	YAMAKAWA ET AL.	
	Examiner	Art Unit	
	Seungsook Ham	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-12 and 14-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-12 and 14-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The disclosure is objected to because of the following informalities:

In the specification, page 15, line 12, "according to the embodiment" is confusing as to which embodiment refers to.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4, 11, 12, 15, and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mansour et al. (WO '221, cited by Applicant) in view of Fiedziuszko et al. (US 4,692,723).

Mansour et al. (figs. 4A-4C and 8) discloses a resonator/filter comprising: a dielectric element 52; a housing 56 accommodating the dielectric element; a holding member 54 holding a dielectric element 52 so as to have a predetermined clearance 64 generated between a dielectric element surface 60 of the dielectric element to which a

generated electric field in the dielectric element is substantially orthogonal and a housing surface of the housing opposed to the dielectric element surface (see fig. 4C, page 5, lines 3-18); and the dielectric element is a half-cylindrical shape.

Mansour et al. is silent as to what type of material is used as a holding member. However, using a dielectric support having a low relative permittivity material then the dielectric element is well known in the art (see also applicant's prior art, fig. 12(b)). Fiedziuszko et al. (fig. 1) discloses a dielectric resonator device having a support/holding member made of a low relative permittivity material. Moreover, Fiedziuszko et al. teaches the support/holding member 7 made of low dielectric constant/permittivity and low loss material (col. 3, lines 4-5) and also has less permittivity than the dielectric element/resonator (e.g., $ZrSnTiO_4$ contains a high permittivity than silicon dioxide, see col. 4, lines 35-63).

It would have been obvious to one of ordinary skill in the art to use a low relative permittivity material as a support/holding member in the device of Mansour et al. to prevent conductor loss as taught by Fiedziuszko et al. (col. 3, lines 4-5) and also since it is a common knowledge in the dielectric resonator field that a dielectric support has a low permittivity compared to the dielectric resonator.

In regard to the newly added claim 25, although Mansour et al. is silent as to specific materials used for the dielectric resonator and the support member, it should be noted that it is well known in the art that a dielectric resonator is made of material having a high permittivity than a supporting member (see applicant's prior art fig. 12(b)). Fiedziuszko et al. (fig. 1) discloses a conventional dielectric resonator having a high

permittivity than the support member (col. 4, lines 35-63). Therefore, it would have been obvious to one of ordinary skill in the art to provide a dielectric resonator having a high permittivity than a holding member in the device of Mansour et al. to obtain a desire resonator/filter characteristic since such design technique is well known in the art.

Regarding claims 2 and 12, Mansour et al. does not specifically address that the dielectric element is operating in TE mode and the holding member has a low relative permittivity material. However, it is inherent from the device of Mansour et al. that the dielectric element 52 is a TE mode resonator since the dielectric element has a cylindrical shape which commonly contains a TE mode as a dominating mode. Alternately, it would have been obvious to one of ordinary skill in the art to provide TE mode dielectric element since such TE mode resonator is well known in the art and requires only a routine skill in the art.

Regarding claim 22, Mansour et al. also teaches that the dielectric resonator/filter can be used in a communication apparatus (i.e., microwave filters), and also discloses sending/receiving means 104, 106 (see fig. 8).

The method steps recited in claim 23 and 24 are implicit from the modified device of Mansour et al. since the structure of the resonator/filter is same as the applicant's claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-10, and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mansour et al. (WO '221, cited by Applicant) in view of Fiedziuszko et al. (US 4,692,723) as applied to claims 1, 2, 4, 11, 12, 14, 15 above, and further in view of Nishikawa et al. (US '397, cited by the Applicant).

The modified device of Mansour et al. does not show the dielectric element can be a quarter-cylindrical shape, a cylindrical shape with a center hole, or polygonal shape. Nishikawa et al. (figs. 2-8) discloses a dielectric element having different shapes. It would have been obvious to one of ordinary skill in the art to modify the dielectric elements with different shapes in the device of Mansour et al. since such modifications in the shape does not alter the resonator/filter characteristic and also such resonator shapes are well known in the art as shown by Nishikawa et al.

Moreover, Mansour et al. does not show input/output probes are placed on where the dielectric element is held. Nishikawa et al. (figs. 9, 15 and 25) discloses the dielectric resonator/filter having input/output probes 34, 38 are placed on where the dielectric element is held. It would have been obvious to one of ordinary skill in the art to provide the input/output probes where the dielectric element is held in the modified device of Mansour et al. to effectively resonate each resonator as taught by Nishikawa et al. (col. 5, lines 10-38).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mansour et al. (WO '221, cited by Applicant) in view of Fiedziuszko et al. (US 4,692,723) as applied to claims 11 above, and further in view of Syrett et al. (US '496).

The modified device of Mansour et al. does not show the holding members hold two or more dielectric elements. Syrett et al. (fig. 2) discloses a dielectric filter having a plurality of dielectric elements disposed in a holding member 40. It would have been obvious to one of ordinary skill in the art to place a plurality of dielectric elements in a holding member in the modified device of Mansour et al. since such design technique is well known in the art as shown by Syrett et al.

Response to Arguments

Applicant's arguments with respect to claims 1, 2, 4-12 and 14-25 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed on 1/24/05 have been fully considered but they are not persuasive.

The 35 USC 102(b) rejection in view Ishikawa et al. has been withdrawn in view of Applicant's amendment and arguments (see REMARKS, p. 10).

In response to the applicant's arguments on Mansour et al. reference, the examiner respectively disagrees.

The applicant argues "nothing in Mansour discloses or suggests that these supports 54 or 74 are formed by utilizing a predetermined low relative permittivity material (i.e., a material which is low relative to that of the resonator" (see REMARKS,

p. 11, last paragraph). However, this argument is not persuasive since the applicant failed to address why using a hold member having low relative permittivity is not obvious or novel in dielectric resonator art.

It should be noted that the subject matter of claims 3 and 13 has been added to the independent claims 1, 11 and 22-24, and newly added claim 25 recites "a permittivity of the holding member being less than that of the dielectric element". The examiner rejected the subject matter of claims 3 and 13 under 35 USC 102/103, and stated that "it is a common knowledge in the dielectric resonator field that a dielectric support has a low permittivity compared to the dielectric resonator" (see previous Office Action, p. 5, first paragraph). The applicant's admitted prior art (fig. 12(b)) shows such well-known dielectric holding member and the dielectric resonator (i.e., ceramic) has a high permittivity than the support 1005 (see also spec., p. 2, fifth paragraph). Wakino et al. (US '652, cited by the examiner in previous Office Action) also teaches using a dielectric support having low dielectric constant/permittivity (col. 4, lines 4-12). Fiedziuszko et al. (US '723) also shows using a support member having low dielectric constant/permittivity and low-loss. Thus, it is the examiner's position that it would have been obvious to one of ordinary skill in the art to provide a holding member having low relative permittivity in the device of Mansour et al. since such holding member is well known as well as provides low conductor loss as taught by Fiedziuszko et al.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seungsook Ham
Primary Examiner
Art Unit 2817

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